

### Abstract

A tunneling barrier for a spin dependent tunneling (SDT) device is disclosed that includes a plurality of ferromagnetic atoms disposed in a substantially homogenous layer. The presence of such atoms in the tunneling barrier is believed to increase a magnetoresistance or  $\Delta R/R$  response, improving the signal and the signal to noise ratio. Such an increased  $\Delta R/R$  response also offers the possibility of decreasing an area of the tunnel barrier layer. Decreasing the area of the tunnel barrier layer can afford improvements in resolution of devices such as MR sensors and increased density of devices such as of MRAM cells.